



COUNCIL AGENDA: 04-24-12  
ITEM: 4.3 (h.2)

## Memorandum

**TO:** HONORABLE MAYOR AND  
CITY COUNCIL

**SUBJECT:** SEE BELOW

**FROM:** Dennis Hawkins, CMC  
City Clerk

**DATE:** 4-10-12

---

**SUBJECT: STATUS REPORT ON DEFERRED MAINTENANCE AND  
INFRASTRUCTURE BACKLOG**

### RECOMMENDATION

As recommended by the Transportation and Environment Committee on April 2, 2012 and outlined in the attached memo previously submitted to the Transportation and Environment Committee, accept the status report on the City's Deferred Maintenance and Infrastructure Backlog.;

# Memorandum

**TO:** TRANSPORTATION AND  
ENVIRONMENT COMMITTEE

**FROM:** David Sykes

**SUBJECT:** STATUS REPORT ON DEFERRED  
MAINTENANCE AND  
INFRASTRUCTURE BACKLOG

**DATE:** 03-22-12

Approved



Date

03/23/12

**COUNCIL DISTRICT:** Citywide

## RECOMMENDATION

- 1) Accept status report on the City's Deferred Maintenance and Infrastructure Backlog.
- 2) Recommend this report be placed on the April 24, 2012 Council Agenda.

## OUTCOME

This report is intended to facilitate Committee discussion of the City's Deferred Maintenance and Infrastructure Backlog needs within the context of the upcoming budget process.

## EXECUTIVE SUMMARY

This staff report provides an update on the City's Deferred Maintenance and Infrastructure Backlog, as well as discusses near term strategies being employed in an effort to minimize certain further increases to the backlog due to impacts from the current economic conditions.

Overall, the Deferred Maintenance and Infrastructure Backlog (DMIB) will total roughly \$811 million in unfunded costs (\$475 million in the General Fund), with an additional \$127 million needed annually (\$97 million in the General Fund) in order to maintain the City's infrastructure in a sustained functional condition.

Similar to the previous 2011 report, the Service Yards, Water Pollution Control Plant and Water Utility programs reported little to no unfunded needs due to stable funding streams. In addition, the Sanitary Sewer Program has decreased the deferred maintenance backlog due to increasing investments in the system and a focus on rehabilitation of aging infrastructure.

Transportation Infrastructure continues to be the program that identifies the largest unfunded need. This area, focusing on the City's street network, roadway lighting and right of way

landscaping assets, has been successful in leveraging Federal, State and regional funding to partially address the needs of the assets.

Building Facilities, City Facilities Operated by Others and the Convention Center and other Cultural Facilities also reported increases in unfunded needs. Many of the newer facilities utilize a variety of sophisticated systems, green systems and other features that enhance the user experience or increase the functionality of the venue, but also increase the expertise and costs associated with their maintenance. Over the next year, Public Works will develop plans for implementation of industry standard strategies for measuring deferred and programmed maintenance and forecasting life cycle costs. This work will include the development of a business plan for funding these long-term maintenance and management programs with stakeholder Departments and facility patrons and organizations.

Parks, Pools and Open Space assets are reporting a large increase in DMIB, primarily due to recent condition assessments at all regional parks and facilities including golf courses and San Jose Family Camp.

In previous reports Radio Communications assets were combined together with Information Technology asset needs. The reported Radio Communications backlog in 2011 was \$23.3 million. This year's report makes a finding that the desired improvements to the program are not deferred maintenance or infrastructure backlog, but rather a planned capital improvement to upgrade to a new generation of infrastructure, with a multi-year phased funding approach.

At the Committee meeting, staff will be making a presentation that will give context for the impacts of the proposed budget on various infrastructure elements, but will also introduce potential strategies for discussion.

## **BACKGROUND**

In October 2007, the first comprehensive report on the City's Deferred Maintenance and Infrastructure backlog was presented to the Transportation and Environment Committee and then to the full City Council in a special Study Session. This report analyzed the unfunded infrastructure and ongoing maintenance needs over a 5-year period for 14 discrete programs in the City. The report identified a one time unfunded need of \$915 million and an ongoing unfunded need of \$45 million.

The comprehensive report was updated in October 2008 as part of the Structural Deficit Elimination Plan efforts, to reflect the Adopted 2008-2009 budget. The report was updated again in June 2009 and May 2010.

The 2011 figures presented in last year's report were determined using the information presented in the previous reporting year and an analysis of current infrastructure conditions and needs and the funding in the Proposed Operating and Capital Budgets.

## ANALYSIS

Staff has updated the 2011 backlog estimates to reflect more recent work. As shown in the chart below, the total unfunded need over the five year period of the 2013-2017 Capital Improvement Program (CIP) is estimated at \$811 million for (\$475 million in the General Fund), with an additional \$127 million needed annually (\$97 million in the General Fund).

Based on these updates, the following table summarizes the current state of the City's Deferred Maintenance and Infrastructure backlog. A breakdown of this backlog by General Fund costs and Other Funds costs can be found in Attachment A. It should be noted that the costs in the chart below represent staff's best estimate at this time. As described throughout the memorandum, further analysis and refinement of these figures would be required before funding to address these unfunded needs would be recommended to the City Council.

Infrastructure Backlog		
Program	Unfunded Needs for All Funds (Over 5-year CIP)	Annual Ongoing Unfunded Needs for All Funds (Over 5-year CIP)
Airport	TBD	TBD
Building Facilities	\$108,570,000	\$4,600,000
City Facilities Operated by Others	11,000,000	TBD
Convention Center and other Cultural Facilities	\$37,100,000	TBD
Fleet	\$6,200,000	0
Parks, Pools and Open Space (1)	\$139,897,000	\$27,979,400
Sanitary Sewer	\$55,000,000	None
Service Yards	None	TBD
Storm Sewer (2)	TBD	TBD
Information Technology (3)	\$9,014,645	\$5,899,482
Radio Communications	None	None
Transportation Infrastructure	\$443,800,000	\$88,760,000
Water Pollution Control Plant (4)	TBD	TBD
Water Utility	None	None
<b>Total</b>	<b>\$810,581,645</b>	<b>\$127,238,882</b>
	<b>(\$811 million)</b>	<b>(\$127 million)</b>

(1) The estimates for Parks, Pools and Open Space differ from last year in that the prior year numbers were estimates based on the best available information at that time and precluded any analysis of citywide or regional parks. Funding for a more detailed infrastructure backlog study was provided as part of the Fiscal Year 2011-2012 capital budget process. The revised numbers are a result of this more comprehensive study that is expected to be completed in September.

(2) A city-wide Storm Sewer Master Plan is underway to evaluate the deferred maintenance and capacity deficits within the City's storm sewer system, with initial results available in late 2013.

TRANSPORTATION AND ENVIRONMENT COMMITTEE

03-22-12

Subject: Deferred Maintenance and Infrastructure Backlog

Page 4

(3) Information Technology needs within Departments not managed by the IT Department are not included in this estimate.

(4) There is potential for an unfunded need for all or a portion of Package II improvements as detailed in the narrative for Water Pollution Control Plant. In the coming year additional analysis will identify potential funding shortfalls.

The Unfunded Needs column describes the lump sum funding in the General Fund and other funds needed to restore a given asset to a satisfactory and serviceable condition rating over a five-year period for the long-term use of the asset for which there is no approved funding source. These funding needs are identified and tracked against the 5-year CIP for each asset class of program.

The Annual Ongoing Unfunded Needs column describes the funding in the General Fund and other funds that are essential to maintain the asset in satisfactory and serviceable condition over a five-year period and to establish a sinking fund for strategic asset maintenance and service in order to extend its service life.

This report does not include information on assets previously held by the Redevelopment Agency. City staff is working with staff from the successor agency to quantify those assets and determine if there are deferred maintenance needs and the potential funding strategy.

This report also does not include any investments that may be recommended in the Proposed Operating and Capital Budgets that would decrease the unfunded needs. Upon City Council approval of the Proposed Capital and Operating Budgets, staff will provide updated figures on the unfunded needs and it is expected that the backlog will be reduced slightly based on the funding available.

Below is a summary of the status and key changes from the prior year in each asset category. Included is information on the status of near term actions that the City has taken or could take to reduce the Deferred Maintenance and Infrastructure backlog, along with any discussion of future opportunities relating to the asset category.

**Airport**

The Facility & Engineering Division of the Airport Department operates and maintains 15 buildings with roughly 3.2 million square feet. These buildings include:

- 1 Fire Department building
- 1 Police Department building
- 8 Terminal Area buildings
- 11 Miscellaneous Support buildings
- Smaller support buildings for structure only
- 2 Garages

At the conclusion of the Airport Terminal Area Improvement Program (TAIP) a significant portion of the Airport's building infrastructure is being operated within established budgets. Maintenance requirements in this area that were not addressed under the TAIP have been identified and some are addressed in the Airport's 5-year CIP. However, the Airport has developed a list of deferred projects that will need to be addressed in the future.

Buildings outside the scope of the TAIP are primarily used for aviation support functions, such as parts storage and minor tenant maintenance activities, and are planned to be replaced through a program of private/public development over the next decade. Additionally, the Airport's Master Plan identifies existing facilities that will be replaced once passenger volume triggers have been achieved. The cost of the deferred maintenance on these facilities has not been included since the facilities are identified for replacement once economic conditions improve.

The most significant area of deferred maintenance remaining is the pavement surfaces, such as taxiways, runways, and aircraft parking areas within the Airport's movement areas and the public right-of-way surfaces. Staff has implemented an improved pavement management system to track and plan maintenance activities on an ongoing basis. This program has established an industry accepted best management practice for identifying pavement life and cost estimates for cost estimating purposes.

A rough order magnitude cost estimate has been identified as \$12 million for the building and pavement deferred maintenance activities, however additional exploratory staff work is required to determine a more accurate accounting and to determine available sources of funding. This estimate has decreased slightly from last year due to special one time funding which assisted in completing several backlogged projects.

The Airport Department is an Enterprise Fund organization that operates with revenues from leases with passenger airlines, cargo carriers, rental car companies, concessionaires and fixed base operators as well as a variety of fees and charges imposed on passengers, passenger airlines, cargo carriers, parking, rental car customers, aircraft fueling and livery carriers. Additionally, the Airport receives grant funding for eligible capital projects from the FAA and TSA. This will continue to be the funding source for all Airport department activities.

In achieving historical trends and asset preservation condition assessments, as well as preventive maintenance activities the Airport department uses two primary asset computer based tools. For horizontal assets the computer software MicroPAVER is used to annually assess the current and future expected asset life. Vertical assets are tracked using Infor EAM software that tracks repair costs, expected end of life asset durations and includes personnel asset condition studies. Future goals for the department are to develop a total Life Cycle Cost Estimating program to assist in replacement cost estimates and remaining asset life expectancies.

### Building Facilities

The Facility Management division of Public Works supports operations at 440 buildings, comprising more than 3 million square feet. These buildings include:

- 38 Fire Department buildings
- 3 Police buildings,
- 19 Libraries,
- City Hall,
- 69 Community Center buildings,
- Numerous other smaller buildings.

The conclusion of the decade of investment, which nearly doubled the square footage of the facility inventory, leads to the next half century where sustainability will be the focus. Facilities that were constructed ten years ago are now reaching the point in their life cycles where maintenance or replacement needs for significant building elements grow significantly. These facilities and their systems were constructed with a high degree of variety and sophistication. This approach has enhanced the user experience and increased functionality of the facilities but has also increased the level of expertise and level of resources needed to maintain them.

In spite of the dedicated efforts of maintenance staff, shortfalls in sources generally used to fund maintenance activities, predominantly General Fund and Construction and Conveyance taxes, have forced reductions that have left insufficient resources to meet the needs of the facilities for day-to-day preventive maintenance. As work items are deferred, the needs compound which can lead to infrastructure failures prior to the expected serviceable life and associated premature replacement costs. The Facility Management division of Public Works utilizes *Infor EAM*, a sophisticated enterprise asset management program that tracks repair costs, expected end of life asset durations and includes personnel asset condition studies.

The current estimated backlog for deferred maintenance in building facilities is nearly \$105M. This estimate is derived from an evaluation of building assessments completed by in-house staff and square foot improvement costs for facilities with low ratings. Acknowledging that the results provide a rough estimate at best, Public Works has prioritized a significant work effort to develop a plan for implementation of industry standard strategies for measuring deferred maintenance and forecasting life cycle costs. The model for this assessment has been completed using the Children's Discovery Museum as the test location. Preliminary estimates indicate that the cost of fully implementing such a program at the most essential facilities is in the \$300,000 range. Because of this, the department will also be analyzing funding approaches to support this evaluative body of work.

Recovery Act Energy Efficiency Block Grant funding has been a significant tool used to address deferred maintenance. Over three years, these funds will support projects to retrofit existing mechanical and electrical systems and to conduct retro-commissioning to ensure that facilities are operating as efficiently as possible. These investments will replace approximately \$1.75

million in aged equipment. The new equipment will run more efficiently and more reliably, helping to address not only capital maintenance needs but also helping to reduce ongoing costs through reductions in energy usage.

Midyear budget adjustments were made in 2011-12 to address some critical needs and additional recommendations are likely in the 2012-2013 Proposed Operating and Capital Budgets. This supplement will certainly help, but critical deferred maintenance needs are expected to continue to exceed available funding even in the most immediate budget years. This points to the need for a significant funding source to catch up to the current need.

#### City Facilities Operated by Others

These facilities, totaling over 900,000 square feet, include:

- Children's Discovery Museum
- Museum of Art
- Tech Museum
- Repertory Theater
- History San Jose facilities
- Hayes Mansion
- San Jose Ice Centre
- HP Pavilion
- Municipal Stadium

Several of these operators took reductions in their subsidies last fiscal year that directly affect their ability to maintain the facilities. Various approaches to funding deferred maintenance have been discussed and will continue to be explored, including a ticket surcharge fee charged by the operator, bond issuance, and designating a portion of the City subsidy for a capital replacement sinking fund.

Different facilities within this category are at different stages of development in terms of maintenance strategies. The Ice Centre and HP Pavilion, for example, have revenue streams associated with the facilities to fund capital maintenance; and, the Ice Centre agreement contains a detailed life cycle replacement schedule that is the responsibility of the City, but funded through lease payments for the facility. On the other hand, most of the cultural facilities and Municipal Stadium have recently relied on occasional investment in infrastructure repair and replacement from the Redevelopment Agency but have no other dedicated funding sources, nor has there been significant work done on assessing needs.

The deferred maintenance amount of \$11M in this category is based on a recent study conducted by Deloitte for only a few of the buildings in this category. Because the detail of this Deloitte report was limited, staff is recommending a similar analysis to that proposed for the building facilities operated by the City as discussed above. Assuming the assessment program described under the "Building Facilities" section of this report is funded, the actual number will be revised for next year's report.



### **Convention Center and other Cultural Facilities**

These facilities are operated by Team San Jose on the City's behalf. The facilities include:

- Convention Center
- Center for Performing Arts
- Montgomery Theater
- Civic Theater
- California Theater
- Parkside and South Halls.

These facilities total 700,000 square feet, with an additional 120,000 square feet programmed to be built in the convention center expansion described below.

The Convention Center expansion project is currently in construction. Included in the project are the replacement of the Center's obsolete central utility plant and fire alarm and the installation of a new digital building management system. These improvements will reduce the deferred maintenance backlog for the Convention Center by \$14.1 million. Each of these facilities requires an assessment of the building systems as described in the two preceding asset categories. This category will be included in the work described above.

The Convention Center provides an example of the work that is involved with older facilities. In last year's report, the estimate for deferred maintenance was only \$23M. Theoretically, we would have expected the investment in the facility through the expansion to address these needs. As the Convention Center expansion project got underway this fiscal year, it became evident that the need was significantly greater than identified previously. This is the result of increased assessment of current systems that resulted from the expansion project. We would expect to see the same exponential growth at other older facilities in the inventory and compounds the need to conduct a detailed assessment.

### **Fleet**

The City's Fleet Management Program provides preventive maintenance, repairs, statutory inspections and fueling services for a fleet inventory consisting of 2,378 vehicles and equipment that support public safety, public health, and general government operations citywide. These vehicles and equipment are categorized as follows:

<b>Category</b>	<b>Qty</b>
Police Patrol	327
Fire Front Line	115
General Fleet	960
Off Road Fleet	189
Other Equipment	787
<b>TOTAL</b>	<b>2,378</b>

This year's vehicle and equipment total is reduced by 175 assets, or 7% from last year's total of 2,553. The City's fleet assets inventory will continue to "right-size" as the organization's overall service delivery systems adjust to the current and future budget reality of the City. As this "right-sizing" occurs, vehicles that are no longer needed for one program will be shifted to another in order to ensure the City is replacing the vehicles that are the oldest and in the worst condition. This strategy helps extend the useful life of the entire vehicle and equipment inventory.

To assist in the overall management of the City's fleet asset inventory, Public Works utilizes an asset management software application called AssetWorks to monitor equipment utilization, maintenance and repair programs, and fuel management operations. AssetWorks provides the information and reporting to assist staff in maximizing the lifecycle of the City's investment in vehicle and equipment assets.

As a budget balancing strategy, the City has significantly decreased General Fund vehicle replacement funding for several years. This has increased the backlog of vehicles that meet replacement criteria. Assuming that the City is no longer faced with a budget deficit and staffing and service delivery functions were to stabilize next year, \$6.2 million would be needed to replace vehicles or equipment assets that meet the established replacement criteria of age and mileage by class. A mechanical assessment would be completed prior to the replacement of the vehicle or equipment which could extend the useful life of the asset and decrease the unfunded needs. Adequate funding to maintain vehicles and equipment is budgeted in the Operating Budget; therefore, there would be no annual ongoing unfunded need to maintain the vehicles or equipment.

Funding for vehicle replacement has historically been a combination of General Fund and special fund sources depending on the use of the vehicle. Public Safety vehicle funding has remained fully funded in order to ensure service and most special fund vehicles are replaced on the standard schedule. It is anticipated that the 2012-13 budget will include \$800,000 for General Fleet replacement. This will need to be increased significantly in the future to keep up with ongoing needs and to reduce the backlog. This is an important consideration as the older vehicles cost significantly more to maintain, which in itself creates a growing General Fund expense. In the next year, staff will develop and recommend a program to significantly reduce the vehicle replacement backlog.

### Parks, Pools and Open Space

The City's infrastructure assets under this category include:

- Neighborhood and Regional Parks and Open spaces – 3,441 acres (1)
- Trails – 54 miles
- 51 Pedestrian Bridges
- Dog Parks – 9 each
- Aquatic Facilities – 6 pools and 1 swim lake (Almaden Lake)
- Skate Parks – 5 neighborhood and 1 regional (Lake Cunningham)

TRANSPORTATION AND ENVIRONMENT COMMITTEE

03-22-12

Subject: Deferred Maintenance and Infrastructure Backlog

Page 10

- Community Gardens – 19 neighborhood gardens across the City
- Sports Fields – 46 soccer and 52 baseball, softball and T-ball fields
- Rest Room Buildings – 59 stand alone park restrooms

(1) Including golf courses and San Jose Family Camp

The 2011-2012 Adopted Capital Budget and the 2012-2016 Capital Improvement Plan (CIP) focuses on long term financial sustainability and emphasizes reducing infrastructure backlog, installing artificial turf sports fields, trail development and land banking for future park development. A Capital Infrastructure Team has been aggressively implementing small infrastructure repair projects that support improved financial sustainability outcomes.

Concurrently, an infrastructure backlog study project has commenced that will provide detailed information regarding parks and recreation facility condition and affiliated costs to eliminate the backlog. Over the backlog study's first months, staff refined the approach to quantifying and describing asset needs across all categories with a focus on the citywide or regional parks category. The category was selected for further examination as it comprises part of a data gap identified in last year's report.

The infrastructure backlog cost data for neighborhood serving parks, trails and stand alone rest rooms were refined this year at a macro level and the updated cost data in this report reflects that work. A data gap still exists for underutilized accessory buildings, properties leased to third parties, and other miscellaneous assets. These facilities are to be further evaluated as a next step.

At present, it appears that the unfunded backlog need of nearly \$73.7 million exists at the regional facilities alone and the cost for all categories may exceed an unfunded need of \$210 million. The \$210 million total includes \$70 million for PRNS Buildings that are accounted for in the Building Facilities asset table on page 3 of this report.

TYPE OF FACILITY	COST
TRAILS	\$5,350,000
NEIGHBORHOOD PARKS	\$57,821,000
RESTROOMS	\$3,020,000
REGIONAL PARKS	\$73,706,000
Subtotal	\$139,897,000
* PRNS BUILDINGS	\$70,000,000
Total	\$209,897,000

\*In the table on page 3, the PRNS buildings number is included in the overall Building Facilities number as opposed to the Parks, Pools and Open Space number

Ongoing unfunded needs for these assets requires further refinement as well as continued refinement of all categories comprising the backlog study. The backlog study will be completed in September 2012 with data used to form the 2014-2018 Proposed CIP.

In addition to the small infrastructure repair projects mentioned above, staff has been negotiating with other organizations to establish future maintenance cost sharing. Examples include joint use agreements with Guadalupe River Park Conservancy, local school districts, and other agencies or groups. As negotiations complete with prospective partners, results will be made available as the agreements are brought forward for City Council action.

Currently, the Parks and Community Centers rely heavily on the Park Trust Fund and the City's Construction & Conveyance (C&C) Taxes for ongoing funding for new facilities or to upgrade existing facilities to accommodate new residents. C&C Taxes are also used for infrastructure preventative and capital maintenance. Based on the revised estimate of the infrastructure backlog, these funding sources will not likely be sufficient or in the case of the Park Trust Fund, eligible to be used repair the facilities in need of rehabilitation. The PRNS department will continue to explore alternative funding sources to address the backlog in the future.

### Sanitary Sewer

The sanitary sewer collection system includes:

- 2,200 miles of sanitary sewer mains (6 inches to 90 inches in diameter)
- 10 miles of force mains
- 15 pump stations
- 45,000 manholes
- 202,000 lateral connections

To assist in the overall management of the City's sanitary sewer system, several software applications are being utilized. To manage system capacity needs, PW staff is utilizing InfoWorks coupling with a systematic process to incorporate land use planning information, flow monitoring data and design criteria for estimating wastewater flows and appropriate sizes of the system. To monitor system condition, PW staff stores sewer video inspection data and coding standards utilizing InfoNet to analyze and prioritize repair and/or rehabilitation work.

For Operation & Maintenance, DOT staff utilizes Hansen software which provides staff with an inventory of the sewer collection system and tracks maintenance history, work orders, inspections and work performance efficiency.

#### 1. Capacity needs

The Sewer Master Plan Phase II Report (Master Plan), completed in September 2011, identifies 93 trunk sewer capacity improvement projects totaling approximately \$170 million. Approximately 65 percent of these projects are needed to address existing capacity deficiencies in the system and can be viewed as infrastructure backlog rather than deferred maintenance. Capacity projects attributable to the existing needs of the system were developed using a sophisticated computer model that predicts the impacts of a 10-year, 24 hour design storm on the system. The collection system must be sized to convey the peak wet weather flows associated with a major storm. The capacity projects needed to address these existing deficiencies equate to an annual cost of approximately \$6 million/year for the next 20 years.

## 2. Rehabilitation and condition assessment needs

Completed in 2010, the Pilot Sanitary Sewer Condition Assessment Program utilizing a risk-based analysis of statistic samples of the sewer system revealed the need to invest in frequent monitoring of the high-risk pipelines. The key findings of the Pilot SSCA Project were that over 50 percent of the system is free of defects, but that approximately five percent of the system has defects which require repair or replacement within 5 years. Priority defects are addressed on an on-going basis either by DOT sewer repairs crews or by a Department of Public Works On-call contractor.

The SSCA also recommends an annual budget of \$28 million for rehabilitation of the system for the first five-years to keep the system from further deterioration and keep it at a satisfactory serviceable condition. In addition, an investment of \$2 million annually for on-going pipe inspection by Closed Circuit Television (CCTV) to monitor the system condition is recommended for system condition assessment.

## 3. Funding

Annual transfers from the Sewer Service and Use Charge Fund to the Sewer Service and Use Charge Capital Improvement Fund were increased substantially in FY 2011-2012 from approximately \$14.5 million per year to \$31 million. The transfer for each of the remaining years in the 5-year CIP is currently set at \$25 million. This funding covers most of the rehabilitation needs identified above, but there is a possibility that an increased transfer will be necessary to stay current with the total rehabilitation and capacity needs. Based on the current annual transfer amount of \$25 million, the "Annual Unfunded Need" is the difference between the "Budget Need" (\$36 million) and the \$25 million transfer amount as shown in the following table:

Annual Capital Transfer Need:	
Rehabilitation	\$28 million
Condition Assessment	\$ 2 million
Capacity	\$ 6 million
<b>Total Budget Need</b>	<b>\$36 million</b>
Current Annual Capital Transfer	\$25 million
Annual On-going Unfunded Need	\$11 million
Unfunded Need	\$11 million x 5 years = <b>\$55 million</b>

Last year's unfunded need (\$171 million) include the estimated total cost to upsize the system capacity based on the GP 2020 and the "worst-case scenario" cost to rehabilitate the collection system. With the completion of the Capacity Master Plan Study which is based on the GP 2040 and the Pilot Condition Assessment Study, these costs have been revised and prioritized. Consequently, the original "backlog" estimate was reduced. As more investments are made into rehabilitation of the system, the on-going cost to maintain the system is expected to be reduced.

### Service Yards

The four City service yard facilities include 325,000 square feet of space and over 1.8 million square feet of property. The yards are:

- Mabury Yard
- South Yard
- Central Service Yard
- West Yard

Improvements in service yards are funded through the C&C allocated to Service Yards. Historically this fund has been healthy enough to meet the needs at the service yards and the five year forecast shows that the fund continues to remain positive. Some assumptions are made as to the timing and value on the sale of the former Main Yard in the five year forecast that, if not fully realized, could have a negative impact on the capacity of the fund.

At this time, the Service Yards program has a fairly minor infrastructure maintenance backlog. Although C&C funding levels for maintenance will be more limited over time, the current levels will continue to fund any required infrastructure and maintenance projects. Because service yards house City fleet and equipment, the needs include both buildings and site work. In order to identify the long term maintenance needs of these facilities, staff will need to conduct a site analysis for each as described above in the Building Facilities section of this report. Because of the lower apparent need in the Service Yards program, these facilities will be programmed later in the evaluation process.

### Storm Sewer

The storm sewer collection system includes:

- 1,150 miles of storm sewer pipe
- 29,900 storm drain inlets
- 4,500 miles of curb & gutter
- 1,500 storm outfalls
- 28 pump stations

Infrastructure needs in the Storm Sewer collection system have not been quantified; however, a comprehensive, citywide Storm Sewer Master Plan is under way which will provide a concise infrastructure investment plan in order to maintain an efficient and effective storm sewer collection system. The Storm Sewer Master Plan is utilizing flow monitoring data and software to build a comprehensive dynamic computer model of the system that is integrated with gravity flow systems, pump stations and treatment facilities.

A storm sewer connection fee study is underway; however, substantial adjustments are unlikely until a citywide Storm Sewer Master Plan is developed to identify system deficiencies and capacity needs of new development. The Adopted CIP also funds pump station rehabilitation

efforts and minor storm sewer improvement projects. The Proposed CIP will likely further improve the storm sewer collection system in Alviso and other critical areas, as well as continued pump station rehabilitation.

To operate and maintain 28 storm pump stations efficiently, it is essential to upgrade the stations with a new Supervisory Control and Data Acquisition (SCADA) system. Funding in the amount of \$900,000 was included in the Adopted Operating Budget to upgrade of the storm pump stations with a new SCADA system.

Funding for the Storm Sewer Capital Improvement program is derived from a transfer of funds from the Storm Sewer Operating Budget, which is funded through Storm Sewer Service Charge fees. These charges are assessed annually on properties and collected with real property taxes. The transfer level for the Proposed CIP is still under assessment; however, it is currently expected that the amount transferred will decrease. This level of funding will be sufficient for staff to continue work on the master plan, decrease the maintenance backlog, improve the system reliability and ensure sufficient capacity.

### Information Technology

The Information Technology Department (ITD) enables the workforce through voice and data communications, protects and supports the City's technical infrastructure, and provides strategic direction for technology investment across the organization.

- Support an email system that processes over 7 million emails messages per day
- Stores and protects data equal to 10 times the volume in the Library of Congress
- Maintains over 2200 PCs and laptops
- Support a multitude of mobile devices that provide "data on the go"
- Support over 300 physical and virtual servers
- Has recently deployed blazing fast internet access for employees which will soon be extended to the downtown core through WiFi

Over the past five years, the technology industry has experienced a transformative shift away from large, costly, monolithic systems for HR/Payroll, Financials (i.e. FMS) and other modules of enterprise resource planning (ERP). The previous cost estimates to address the IT infrastructure backlog were based on a "traditional" model of large-scale replacement with significant customization and consulting services, following prior years' approach to technology investments.

However, the City is in a position to use these industry advances as an opportunity to address the replacement and/or upgrade of antiquated, high-risk infrastructure at a sharp reduction in both the initial and ongoing investments previously projected. The need to address the infrastructure backlog and modernize the technology that supports our employees and the public has not changed; the change has occurred in the options available to address the needs.

Over the past two years, ITD has made strategic investments to align City operations with those changes in the technology industry. As an example, the previous infrastructure backlog estimates included several million dollars to replace and/or upgrade the aging network. Rather than waiting for funding and resources to make another large-scale capital investment with expensive ongoing maintenance, the department seized the opportunity to move to commoditized replacement of the network and address a large and critical piece of the IT infrastructure within existing resource constraints. Using internal staff and redirecting a portion of the existing network maintenance budget to supply funding toward a network replacement, the City now boasts an easily replaced modular network based on industry standards. This allows the City to keep pace with advances in technology, take advantage of price reductions as a result of increased market competition, and enables incremental cost-effective upgrades that will ultimately aid in preventing the City's return to a large deferred maintenance backlog for the network. Additionally, it significantly reduces the initial cost estimates for the hardware infrastructure backlog.

An ongoing funding stream for a sustainable IT environment continues to be a major obstacle in addressing deferred maintenance and mitigating current systems from becoming part of the backlog. However, advances in the industry and the City's willingness to embrace alternative solutions in itself reduces the infrastructure backlog and sets the City on a path to ongoing, cost-effective sustainable technology solutions.

As we continue to explore solutions to the IT infrastructure backlog, the next evolution of technology will require the City to focus on outcomes rather than a "business as usual" approach. The one area that has not changed is the need for highly skilled technical personnel. As we make investments to modernize our technical infrastructure, qualified personnel will move from simple maintenance of systems to delivery of solutions. While one-time funding is important, without both the ongoing investment in technology and staff, the City runs the risk of slipping back into an inevitable state of "tech decay."

The tables below illustrate the projected reduction of current unfunded infrastructure backlog for technology as compared with the previous projection, based on current opportunities in the marketplace. These estimates only reflect the technology needs of the enterprise and do not address potential issues in individual departments such as necessary upgrades of line-of-business applications.

One-Time Costs	2011-12 Unfunded Projection	2012-13 Revised Unfunded Projection	Difference
Hardware	\$11,483,000	\$1,123,200	(10,359,800)
Software	\$35,000,000	\$7,891,445	(27,108,555)
Total	\$46,483,000	\$9,014,645	(37,468,355)



Ongoing Costs	2011-12 Unfunded Projection	2012-13 Revised Unfunded Projection	Difference
Hardware	\$1,983,000	\$1,349,000	(634,000)
Software	\$5,500,000	\$4,550,482	(949,518)
Total	\$7,483,000	\$5,899,482	(1,583,518)

### Radio Communications Program

It should be noted that in previous reports, the Radio Communications Program was included in the Information Technology Section. This year the radio program has been called out separately. The City's infrastructure assets under this category include:

- City-Wide public safety radio systems – 20 radio channels
- Simulcast radio systems – 11 radio channels
- City owned radio sites – 18 sites
- City owned equipment at non City owned Sites – 12
- Enterprise radio systems – WPCP, Airport
- Public Safety Answering Point (PSAP) – 32 radio consoles
- Infrastructure, mobile and portable radio devices – Approximately 6000 units
- Inventory for support & maintenance – approximately 1000 units
- Test equipment – 30+ units

A key area of needed improvement in the City's radio communications system is the development of a 700/800 MHz trunking radio system. A trunking radio system will enable the City to make efficient use of the available 700/800 MHz band to support interoperability between Bay Area agencies, expand the coverage of our public safety communications systems, and to ensure the efficient use of current and future technologies.

While staff will continue to pursue grant funds to fully fund a trunking radio system project, it is likely that the Communications Program in the Proposed CIP will programmed \$2 million (\$834,000 in 2012-13) to initiate the build-out of the trunking radio system and this has been planned as a phased approach to start with the implementation of the central site controller ("switch") and two radio sites. Other sites will be constructed in future years as funding allows, including subscriber (portable unit) replacements.

Through cooperation with the Silicon Valley Radio Interoperable Radio System (SVRICS) grant funding has been recently leveraged to construct a radio site at Fire Station 29, expanding the Emergency Communication Microwave (ECOMM) system. The expansion of the ECOMM system will provide the "backbone" for the trunking radio system. Matching funding was not necessary for this grant.

The replacement of the tower at the Eagle Rock radio site has been deferred pending the build-out of the trunking radio system.

The reported Radio Communications backlog in 2011 was \$23.3 million. This year's report makes a finding that the desired improvements to the program are not deferred maintenance or infrastructure backlog, but rather a planned capital improvement to upgrade to a new generation of infrastructure, with a multi-year phased funding approach.

### Transportation Infrastructure

The City's infrastructure assets under this category include:

- Street Pavement – 2,400 miles
- Traffic Signals – 904 signalized intersections
- Roadway Signs – 79,664 traffic control signs; 3,600 intersection street name signs; estimated 27,000 residential street name signs
- Roadway Markings – 5.3 million square feet of markings; 283,000 existing raised pavement markers (RPMs) and 195,000 locations where RPMs need to be installed
- Streetlights – 62,370 streetlights and poles
- Landscaping – 233 acres of landscaped properties for general benefit
- Street Trees – 243,450 street trees and 86,780 vacant street tree sites
- ADA Compliant Curb Ramps – 26,800 locations (8,583 locations with no ramps; 14,822 locations with ramps that are not fully compliant and need modification or replacement; 3,395 locations currently in compliance)
- Vehicular Bridges – 162 bridges
- **Street Pavement**  
The City's most significant transportation asset is the street network consisting of 2,400 miles of pavement. The lack of adequate investment in the maintenance and repair of the street network over the years has resulted in a continual degradation of its condition. The estimated cost to eliminate the deferred maintenance backlog has grown from \$277 to \$293 million over the past year. Based upon information presented to the City Council in October 2010, approximately \$100 million would be needed annually to eliminate the backlog and to improve overall pavement conditions to a rating of good. Funding levels for the next five years are estimated at approximately \$20 million per year. This represents an increase of \$6 million from last year's report due to voter approval of County Measure B, which enacted a \$10 annual vehicle registration fee for local transportation purposes and anticipated allocations from available traffic capital funds in the Capital Improvement Program. At current and projected funding levels, the backlog of deferred pavement maintenance will continue to grow and the overall condition of the network will continue to decline. The current Pavement Condition Index (PCI) for all San Jose streets is 64 on a 100 point scale, a rating of fair, and the lowest of all cities in Santa Clara County. By the year 2020, it is estimated that 54% of all streets will be in poor condition and the backlog of deferred maintenance will escalate to \$860 million.

In previous years, a combination of local, regional, State and Federal funding has been allocated for pavement maintenance and repair. However, currently no General Fund dollars and only limited amounts of traffic capital funding are available. The majority of funding allocated for pavement maintenance comes from regional, State, and Federal funds, including: Measure B vehicle registration fees, State gas taxes, Federal grants and State Route relinquishment funds.

In October 2010, the City Council conducted a Pavement Maintenance Study Session to discuss strategies and alternatives to address the pavement maintenance backlog and funding shortfall. As directed, updates were presented to the T&E Committee and City Council in October 2011 with further direction to report back in March 2012 on the formulation of a "Priority Street Network" given the limited funding available for maintenance purposes. In March 2012, the T&E Committee approved for consideration by the City Council a 400-mile "Priority Street Network" of major streets that are most heavily used by San Jose residents and provide access to major job centers and residential areas throughout the City to be maintained with the limited available funding. The remaining 400 miles of major streets and the entire 1,600-mile residential street network would only receive corrective maintenance treatments until more funding become available.

- **Traffic Safety Devices**

Included in this category of transportation infrastructure assets are Traffic Signals, Traffic Control and Street Name Signs, and Roadway Markings. All three of these programs have experienced funding and staffing reductions over the past decade, and have both one-time deferred maintenance investment needs as well as ongoing annual shortfalls that prevent the programs from keeping pace with prescribed maintenance cycles for these assets.

Traffic Signals

The City has 904 traffic signal intersections and DOT responds to 1,950 service requests annually. The intersections contain a variety of complex equipment such as traffic signal controllers and cabinets, video detection systems, flashing safety beacons, sophisticated communications systems, traffic conflict monitors, cameras, 74 miles of fiber, and 146 miles of interconnect cable throughout the City. DOT also maintains speed radar feedback signs and changeable traffic direction signs. Over the last five years, budget reductions have reduced preventive maintenance activities for much of this equipment. Currently, only the most critical components that monitor the operation of intersections are proactively maintained. The remaining resources are focused on responding to service requests (e.g. malfunctions) in a timely manner. There is a one-time rehabilitation cost of \$7.2 million for existing equipment, and an ongoing annual shortfall of \$2.6 million. The annual shortfall includes amortized replacement costs and maintenance costs for new equipment, as well as the cost to provide all preventive maintenance activities for all signalized intersections.

### Traffic Control and Street Name Signs

DOT's Traffic Sign Maintenance Section (TSMS) installs and maintains traffic control signs in the City right-of-way to regulate traffic, warn motorists (e.g. schools zones), and provide other basic traffic directions. Proper maintenance of these signs is essential to the safe and efficient flow of traffic and pedestrians through the public right-of-way. The TSMS also installs new residential street name signs and maintains traffic signal intersection street name signs. There are 79,664 traffic control signs, an estimated 27,000 residential street name signs (cobalt blue signs), and 3,600 traffic signal intersection street name signs (large green signs) in the City of San José. TSMS has an inventory and database for all traffic control signs but not for street name signs. The estimated one-time cost to eliminate the current backlog of traffic control signs and street name signs in need of replacement is \$3.9 million. The highest priority element of this sign backlog is traffic control signs with an estimated cost of \$550,000. An annual ongoing need of \$500,000 exists to keep up with prescribed maintenance cycles and ensure that all signs meet visibility and operational standards.

### Roadway Markings

The roadway markings inventory includes roadway striping, crosswalks, stop bars and messages on street surfaces, and Raised Pavement Markers (RPMs). The purpose of these marking devices is to regulate and guide motorists, pedestrians and cyclists to increase roadway safety, particularly during low visibility conditions. Currently, there are 5.3 million square feet of roadway markings throughout the City. To have 100% of markings in good condition, major roadway striping should be repainted every year; arterial legends and curb painting should be repainted on a two-year cycle; and residential areas should be repainted on a three-year cycle. Current funding only allows for a two-year repaint cycle for striping on major roads, a three-year cycle for arterial legends and curbs, and a six-year cycle for residential areas. Currently, 1.9 million square feet of roadway markings are in need of re-painting to achieve 100% in good condition.

Currently, 100% (166,981) of Residential RPMs and (116,053) of Major Roadway RPMs have exceeded their life expectancy of 8 years and are in need of replacement. There is no preventive maintenance program to replace RPMs. In addition, about 195,000 RPMs should be installed at new locations once funding is available.

In order to achieve 100% of the total roadway markings inventory (5.3 million square feet of paint and all RPMs) in good condition, one-time funding of \$3.4 million is needed, with \$1.2 million annually to keep up with the prescribed maintenance cycles.

- **Right-of-Way Street Lighting**

The City of San José owns and maintains approximately 62,370 streetlights and streetlight poles. The Streetlight Maintenance Program is currently complaint-driven, addressing those outages or damaged lights that have been reported by the public. The current streetlight network contains 32,961 painted octaflute streetlight poles and 29,409 remaining lights that are either on galvanized poles, decorative poles, or are uplights.

The City's core service goal is to have streetlights operational 97% of the time. Based on current resources, the target service level for repairs of streetlight outages is 65% within seven days. Workloads increase from an average of 800 service requests a month to an average of 1,100 complaints per month starting in November and continuing through March. At current staffing levels, and with the increased occurrence of copper wire theft resulting in increased outages throughout the City, streetlight outages are currently being repaired 57% of the time within seven days.

The 32,961 painted octaflute streetlight poles have different degrees of paint conditions on their surface. The City previously allocated funding to refurbish old painted octaflute streetlight poles with poor paint conditions (e.g. peeling paint, exposed metal) into galvanized poles which have significantly longer life expectancies. This funding was discontinued due to budget shortfalls in 2001-02. Refurbishing all of the 32,961 painted streetlight poles with galvanized surfaces would require a total one-time rehabilitation investment cost of \$23.6 million. Additionally, there is an identified unfunded need of \$100,000 to address future incidents of streetlight wire theft. So far, approximately 200 locations have been reported and identified as having had streetlight wire stolen over the past year, typically resulting in multiple outages at each location, and the occurrences are expected to continue. DOT is taking a number of steps to repair known theft locations and deter future occurrences, including coordination with the Police Department. In FY 2011-12, a mid-year allocation of \$150,000 was approved for the repair of known wire theft locations. It is anticipated that additional funding will be needed to address any future occurrences as well as procure deterrent mechanisms that can be installed to protect the streetlight network from theft.

The Streetlight Program also has an annual ongoing shortfall of \$200,000 which is needed to increase "repairing streetlights within seven days" to an average of 85% in all quarters, and to turn on 900 lights shut off in FY 2008-09, and continue to address ongoing wire theft.

With \$2.9 million in federal grant funds provided through the American Recovery and Reinvestment Act (ARRA) and Community Development Block Grant (CDBG) programs, the City is in the process of converting approximately 2,100 of its streetlights to "smart" LED streetlights—lights outfitted with a remote monitoring and adaptive control system to provide for full lighting in early evenings and with the opportunity to dim lighting levels during late evenings. More lights are also planned to be converted as part of various public and private projects. In total 3,500 LED lights are planned for installation within the next few years, representing the conversion of approximately 6% of the City's streetlights.

In February 2011, the City Council adopted San Jose's Public Streetlight Design Guide which established guidelines for when, where and how much the City can dim its streetlights. The City has worked with the streetlighting industry and other stakeholders to lead efforts to advance technology development, establish design standards, and create with PG&E a pilot energy billing program for adaptive (dimmable) LED lights. In September 2011, the California Public Utility Commission approved a negotiated settlement for a dimmable

streetlight tariff pilot. Five PG&E customers can participate in the three-year pilot, and San Jose is currently a participant. The tariff will allow the City to be billed for its actual energy usage, as reported by its streetlight control system.

Staff estimates it would cost approximately \$60 million to convert the remaining inventory of approximately 59,000 streetlights to "smart" LED streetlights. The City is currently analyzing various financing options. Staff will also continue to seek grant funding to convert more City streetlights and monitor prices to determine when the return on investment might justify using financing to more rapidly convert more of the City's streetlights.

- **Streetscapes**

A significant element of the City's transportation infrastructure is its vast streetscape, consisting of right-of-way landscape, street trees, sidewalks, curb & gutter, and curb ramps.

Right-of-Way Street Landscaping

There are 233 acres of street landscaping in median islands and on roadsides that are maintained by General Fund resources. Of the 233 acres, there are currently 80.4 acres of higher level Type 2 landscape (includes features such as trees, plants, shrubs and turf). Beginning in 2008-2009, \$1.7 million in funding was allocated to convert Type 2 landscape to a Type 1 lower cost maintenance design over a 3-year period, and was extended one additional year at reduced staffing levels. The project is expected to complete a total of 69 acres of conversion work by the end of FY 2011-12. After completion of the project, there will be 78 acres of Type 2 landscape remaining that will need to be addressed, at an estimated cost of \$2.2 million. Additionally, it is estimated that there are locations totaling 24 acres where median landscapes do not currently exist, but where they would be appropriate for enhanced safety and aesthetic purposes. The estimated one-time installation cost for these locations is \$14.4 million which, when combined with the remaining conversion work and \$1 million that is needed for structural pruning of the City-maintained median island street trees, brings the total one-time need in Street Landscaping to \$17.6 million.

Since 2006-07, the average landscape acreage per maintenance worker has risen from approximately 8 acres to 27 acres due to resource reductions and a growing inventory. In 2000-2001, the condition of the City's street landscapes reached their peak in terms of condition, with 86% in good or better condition. Due to budget balancing over the past decade, conditions have declined to the current 47% in good condition. DOT is proposing 7.5 acres per worker as the desired baseline staffing that is needed to maintain Type 1 landscape in good condition, and 5 acres per worker for Type 2 landscape, with a desired target of 90% of all landscapes maintained with General Fund resources in good or better condition. This represents an ongoing annual shortfall of approximately \$2.5 million.

One strategy that was used successfully to help the City maintain some areas of higher level landscape in neighborhoods was the expansion of the Adopt-a-Street volunteer program. Great success in this area was seen in FY 2010-2011 with the adoption of nearly 12 acres encompassing approximately 75 individual parcels of landscape throughout the City. Due to

budget reductions in FY 2011-12 that eliminated the position in charge of this program, it is anticipated that the program will decline as only limited follow-up with the volunteers is possible. Restoring a position to effectively manage and grow this program would require an estimated \$100,000 in ongoing funding. The other component of the ongoing shortfall in the Landscape Maintenance Program is an estimated annual need of \$550,000 to renovate 7.5 acres per year of landscape (replacing dead or damaged trees and shrubs and irrigation systems).

#### Street Trees

There are an estimated 243,450 street trees under the purview of the Department of Transportation, as well as an estimated 86,780 vacant street tree planting sites. The vacant planting sites will cost approximately \$21.7 million in one-time expense split between the City for an estimated 5,000 trees on City property (\$1.2 million) and the remainder for other property owners (\$20.5 million).

Having a complete inventory of the street trees in a city is the foundation on which an effective street tree program can be designed. To date, approximately 60% of street trees in San José have been inventoried. That leaves 40%, or an estimated 132,100 street trees or planting sites, not inventoried, with an estimated cost to complete this work of approximately \$400,000. Funding the remaining amount will be considered in the Proposed CIP. The City's street tree inventory effort will enable the City to explore funding mechanisms such as a property-based user fee to accomplish the pruning of all street trees on a five-year maintenance cycle, addressing tree emergencies, and establishing new trees in vacant planting locations.

The San José Municipal Code requires property owners to maintain street trees adjacent to their properties. The City is a major property owner and, therefore, has the responsibility to prune and maintain street trees adjacent to its properties. It is estimated that there are approximately 26,000 street trees that the City should be pruning on a 5-year cycle. This equates to an ongoing annual cost of \$520,000 that is currently not funded. The annual ongoing cost to all other property owners for pruning the remaining 304,000 street trees on a 5-year cycle is \$6.1 million (this amount assumes that all vacant sites are planted).

#### Sidewalks/Curb & Gutter/ADA Compliant Curb Ramps

Per the City's Municipal Code, property owners are responsible for the cost of repairs for sidewalks and curb & gutter adjacent to their property. The City does not have a curb & gutter inventory but it is estimated that there is approximately \$37.1 million worth of existing needed repairs throughout the City, and that there would be \$700,000 worth of new damage that occurs annually. There is, likewise, no sidewalk inventory, and no estimate of the total amount of sidewalk footage in need of repair throughout the City. Based on the rate of repair that the City experienced when grant programs were available, there is an estimated annual ongoing amount of \$4.3 million in repairs that should be made. This number could be higher, and it is anticipated that the number of sidewalk repairs in 2012-13 will increase beyond what has been seen typically on an annual basis, primarily due to the discovery of a large number of sidewalks in need of repair as a result of the tree inventory that has been

completed to date. Funding recommendations are likely to be included in the 2012-2013 Proposed Operating Budget to increase the sidewalk program allocation significantly to account for this increase in known locations of sidewalk damage.

The City's current Americans with Disabilities Act (ADA) Sidewalk Transition Plan includes a collection of programs, administrative procedures and design standards that support the implementation of accessible public sidewalks for people with disabilities. In recent years, the City has spent an average of \$1.25 million annually to construct ADA compliant curb ramps. There are 26,800 locations that have been identified where ADA curb ramps should exist. Of these locations, 3395 currently have ADA compliant ramps. There are 14,822 locations that have ramps that are not compliant and must either be modified or replaced, and there are 8,583 locations that have no ramp at all and require the installation of new ramps. The one-time cost to bring the remaining 23,405 ramps into compliance is estimated at \$63.4 million.

- **Bridges**

DOT is responsible for the maintenance of 162 bridges throughout the City. The City utilizes bridge inspection reports provided by Caltrans bridge inspectors to determine the costs needed to maintain and rehabilitate these bridges. There currently is a one-time backlog of \$30 million to rehabilitate four bridges that have been identified by Caltrans to be structurally deficient or functionally obsolete. Previous funding sources have been from the Federal Highway Bridge Replacement and Rehabilitation (HBRR) grant program. DOT staff will continue to pursue these grant funds to address the current backlog of bridge rehabilitation projects.

The Caltrans bridge inspection reports also identify corrective maintenance requirements for which the City currently allocates \$100,000. However, this funding allocation is used only for minor bridge repairs and does not provide for preventive maintenance of the City's 162 bridges. A detailed condition assessment of all 162 bridges would be required to determine the extent of work and the cost needed to implement a preventive maintenance bridge program.

The table below summarizes the various assets that comprise the total estimated deferred maintenance and infrastructure backlog for Transportation Infrastructure elements. The total appears in the table on page 3 of this report.

Transportation Infrastructure Needs	
Pavement Maintenance	\$293M
Traffic Signals	7.2M
Roadway Markings	\$3.4M
Roadway Signs	\$3.9M
Streetlights	\$23.7M
ADA Curb Ramps	\$63.4M



Trees	\$1.6M
Landscaping	\$17.6M
Bridges	\$30M
<b>Total</b>	<b>\$443.8M</b>

### Water Pollution Control Plant

Over the past five years the Plant has significantly increased its capital budget to align with the infrastructure needs. This increase was achieved through implementation of a multi-year rate strategy that brought revenues in line with estimated infrastructure reinvestment needs based on a high level condition assessment report completed in 2007. A comprehensive Plant Master Plan (PMP) followed resulting in a Preferred Recommended Alternative in April 2011. Staff is currently working on a two package approach to delivering the Plant CIP as presented to T&E Committee on February 6<sup>th</sup>, 2012.

Package 1 consists of critical infrastructure rehabilitation projects and Package 2 consisting of new technology implementation projects. It is currently expected that approximately \$186 million in construction funding would be recommended in the Proposed CIP. This would average to about \$37 million/year and would consist of some of the Package 1 projects. This expected funding level is below the range recommended by the PMP and reflects the staffing shortages to implement the CIP.

Package 2 consists of an additional \$60 million/year over a seven year period beginning in 2013. These projects are aimed at replacing the Plant's deteriorating power generation equipment and outdated filtration complex, and transitioning the existing open air biosolids drying beds to a new covered mechanical operation. Bond funding for Package 2 projects is being considered to ease rate increase impacts to users.

If funding levels remain at the current level (with possibility for moderate annual increases to account for inflation in future years) and implementation of a bonding strategy for the new technology projects, it is not anticipated that the Plant will have any unfunded infrastructure needs in the next five years for Package 1. Depending on the cost and timeframe for implementing Package II projects, there may be a potential unfunded need for Package II, which will be further analyzed in the coming year.

Over the past several fiscal years, the Plant has increased its maintenance budget to include programs such as the Asset Management and Preventative Maintenance teams. Accomplishments in these areas include the implementation of an advanced Computerized Maintenance Management System (CMMS) to track over 10,000 assets and 4,000 stock parts and over 10,000 specialized parts. Since going live in July 2009, staff have created over 14,200 work orders and submitted over 7,300 requisitions. Over the last 4 years, Plant staff has also

mapped over 200 miles of pipes, duct banks, and fiber optic conduits; including 1,500 valves, manholes, backflow prevention devices, etc.

The CMMS and Geographic Information System (GIS) systems were integrated in July 2010 to enable tracking of maintenance activities in CMMS for equipment mapped in GIS. Furthermore, the Plant has implemented an Underground Service Alert (USA) Program and become a member of USA Northern California. The USA Program provides a layer of safety by ensuring buried utilities are located and marked before excavation begins, promotes awareness of Plant buried utilities, and excavation safety. In addition, Plant staff has 24/7 access to online interactive GIS maps of various systems that allow them to visualize the piping layouts and valve locations for both routine and emergency operations. New CMMS and GIS training continue to be regularly offered to staff as we progress through more advanced systems. Staff can now easily report on equipment included (or not) in the Preventative Maintenance activities or identify equipment more prone to failure or incurring most costs. The combination of CMMS and GIS provides staff with a comprehensive knowledge retention tool which is becoming the central point of knowledge retention and the source to support programs for managing high staffing turnover due to retirement and/or separation.

Over the next two years the focus will be on upgrading the CMMS software to the latest edition that offers more features to improve the overall system. In addition to updating the Asset Management Strategic Plan, emphasis will continue on the physical tagging of all equipment, labeling of pipes, developing maintenance Standard Operating Procedures, linking equipment to material list, vendor manuals, and record drawings. In addition, tracking of equipment acquisitions and current value information, tracking equipment conditions (performance of systematic inspections), and capturing and monitoring equipment health information will be generated for triggering corrective work orders based on established thresholds. While these programs continue to evolve, it is expected that with a full staffing complement, the Plant will make significant strides in implementing the systems necessary to retain knowledge on the process equipment, document repairs such as equipment failures, equipment replacements, and cost. Over the next two years, staff will have the data and tools in place for establishing baselines for measuring efficiency gains and reduced corrective maintenance.

### Water Utility System

The San Jose Municipal Water System (Muni Water) includes:

- 344 miles of water mains ranging from 6-inches to 24-inches in diameter
- 17 reservoirs
- 15 pump stations
- 14 wells
- 3 fluoride injection stations
- Other appurtenances including meters, laterals, hydrants, air release valves, and sample stations

Currently, there are no unfunded capital needs at Muni Water. The annual reinvestment into the system (approximately \$3.0 million) funds a steel main replacement program and infrastructure improvements. Per the Municipal Code, the water utility maintains a Reserve for System Rehabilitation and Replacement (\$1.9 million) for any unanticipated capital needs. Overall, the assets are well maintained in good to excellent condition.

### COORDINATION

This memorandum was coordinated with the following Departments: Airport, Environmental Services, Information Technology, Parks, Recreation & Neighborhood Services, and Transportation.

### CEQA

Not a project

/s/

DAVID SYKES  
Director of Public Works

For questions please contact MICHAEL O'CONNELL, Deputy Director at 408-535-8300.

## General Fund

	Unfunded Needs (Over 5-year CIP)	Annual Ongoing Unfunded Needs (Over 5-year CIP)
BUILDING FACILITIES (Police, Communications, City Hall, Other)	15,510,000	2,600,000
TRANSPORTATION INFRASTRUCTURE**	443,800,000	88,760,000
TECHNOLOGY (Infrastructure)	1,123,200	1,349,000
TECHNOLOGY (Software Upgrades)	7,891,445	4,550,482
FLEET REPLACEMENT	6,200,000	0
<b>TOTAL GENERAL FUND UNMET/DEFERRED INFRASTRUCTURE AND MAINTENANCE NEEDS</b>	<b>474,524,645</b>	<b>97,259,482</b>

\*\* Excludes Street Tree maintenance, sidewalk, curb and gutter repair, based on property owners' responsibility for these expenses.

## OTHER FUNDS (C&amp;C FUNDING, SPECIAL FUNDS)

	Unfunded Needs (Over 5-year CIP)	Annual Ongoing Unfunded Needs (Over 5-year CIP)
AIRPORT	TBD	TBD
BUILDING FACILITIES (Fire, PRNS)	93,060,000	2,000,000
CITY FACILITIES OPERATED BY OTHERS	11,000,000	TBD
CONVENTION CENTER & OTHER CULTURAL FACILITIES	37,100,000	TBD
PARKS, POOLS & OPEN SPACE	139,897,000	27,979,400
SANITARY SEWER SYSTEM	55,000,000	0
SERVICE YARDS	0	TBD
STORM SEWER SYSTEM	0	TBD
TECHNOLOGY (Radio/Communications)	0	TBD
WATER POLLUTION CONTROL PLANT	0	TBD
WATER UTILITY SYSTEM	0	0
<b>TOTAL POTENTIAL OTHER FUND UNMET/DEFERRED INFRASTRUCTURE AND MAINTENANCE NEEDS</b>	<b>336,057,000</b>	<b>29,979,400</b>

<b>TOTAL UNMET/DEFERRED INFRASTRUCTURE AND MAINTENANCE NEEDS</b>	<b>810,581,645</b>	<b>127,238,882</b>
--	--------------------	--------------------

<b>CURRENTLY PROPERTY OWNER RESPONSIBILITY - TRANSPORTATION (SIDEWALK, CURB/GUTTER AND TREE MAINT.)</b>	<b>57,600,000</b>	<b>11,100,000</b>
---	-------------------	-------------------